2005 Preliminary Summer Spill Data

Fall Chinook Radiotelemetry Studies
Performed by
USGS – BRD, NOAA – NWFSC
For the USACE
Anadromous Fish Evaluation Program

Important Considerations

- These estimates do not address transport vs. in-river survival nor adult return issues
- This information is very preliminary and the specific numbers are likely to change
- This is the first look at subyearling passage at most of these projects including RSW's
- These survival estimates are relative survival estimates compared to a tailrace reference (except at Little Goose)

Legend

Passage Metrics

Survival Metrics

% of fish passing a dam via a specific route

% of fish surviving a dam or specific dam passage route

Passage Route

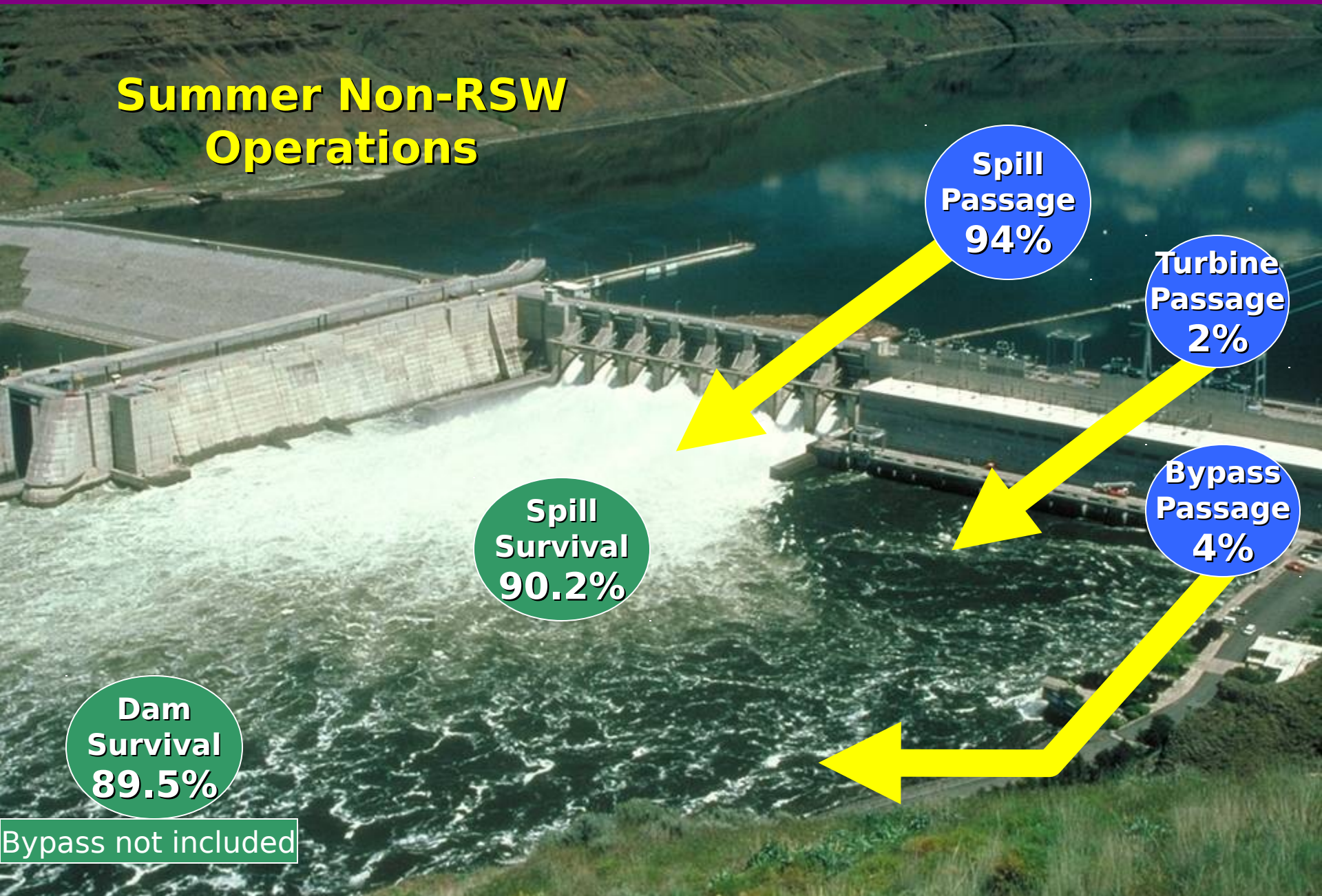
% of Fish Passing a dam via an RSW

% of fish surviving RSW passage route

Lower Granite Background Information

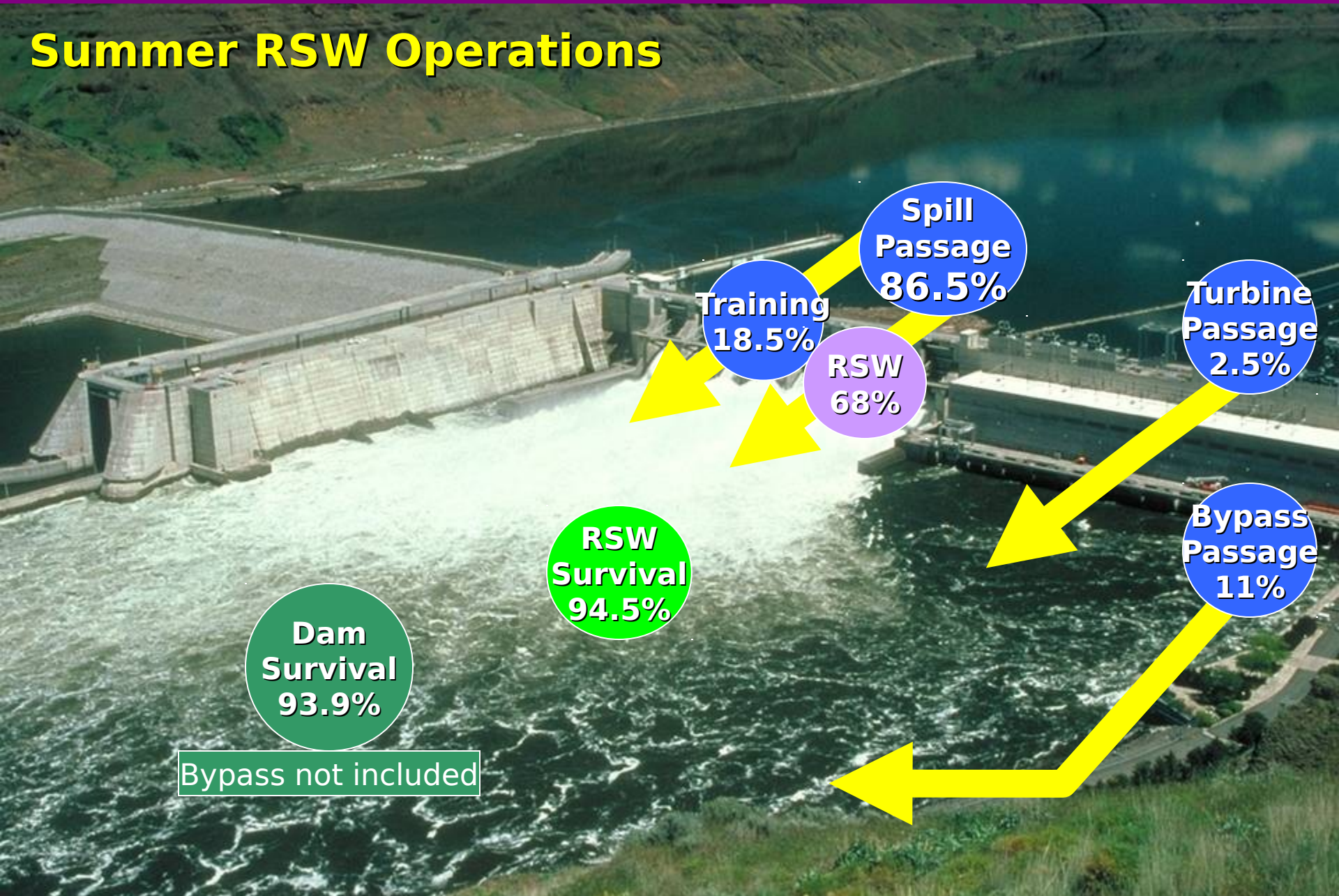
- Study
  - Radio Telemetry – Paired Release (2200 fish released)
  - June 20 – July 22
- Operations
  - RSW on Total Avg Q = 41kcfs
  - RSW on Spill Avg Q = 18.5kcfs (46.7%)
  - RSW off Total Q = 43.4kcfs
  - RSW off Spill Avg Q = 30.5kcfs (69.6%)

Lower Granite Dam



Lower Granite Dam

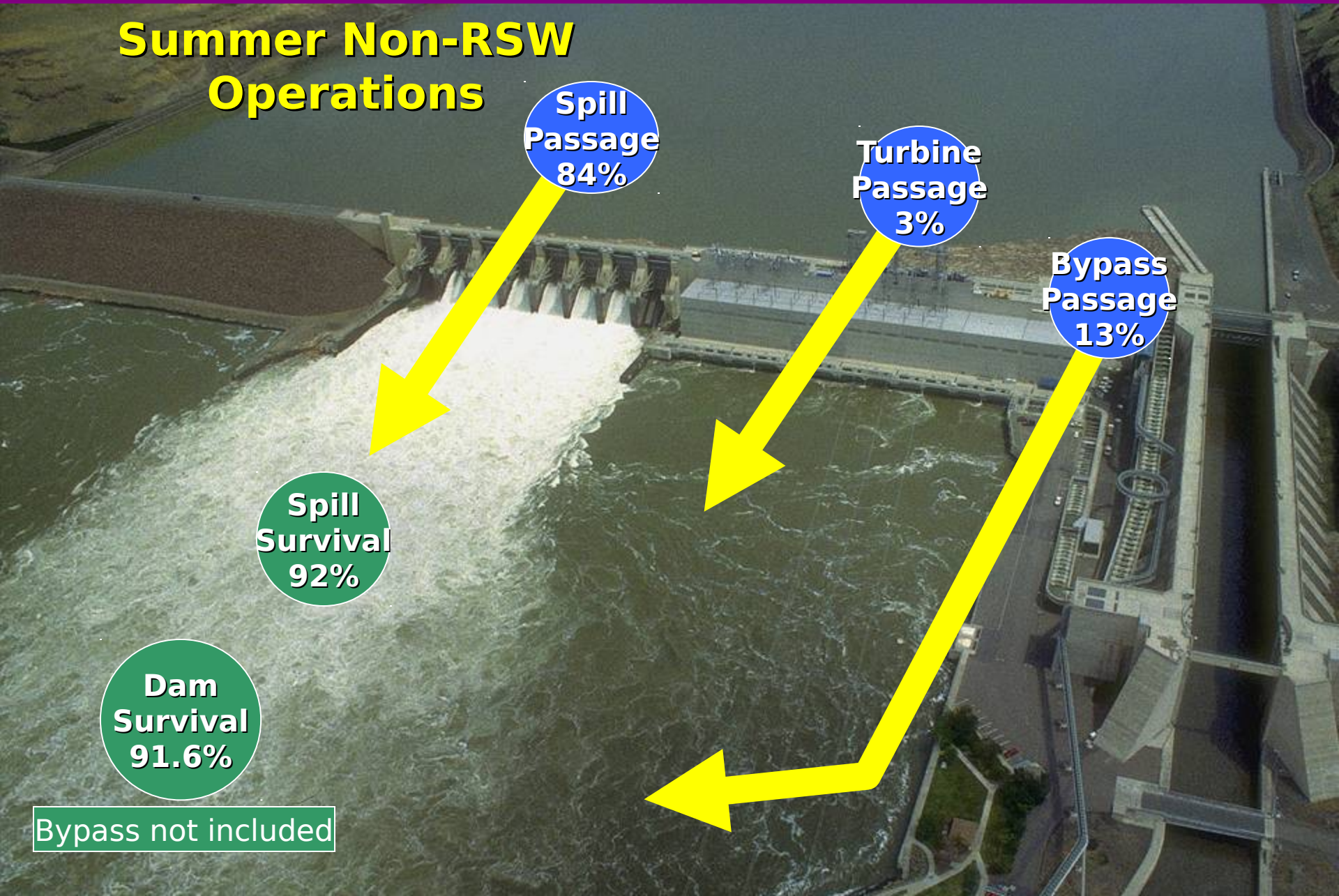
Summer RSW Operations



Little Goose Background Information

- Study
  - Radio Telemetry – Single Release
  - Used the ~2000 fish released at LGR
  - June 21 – July 28
- Operations
  - Total Avg Q = 39.6kcfs
  - Spill Avg Q = 17.9kcfs (44%)*
    - Spill changed during the study due to adult passage issues
      - Spill limited to 30% daytime

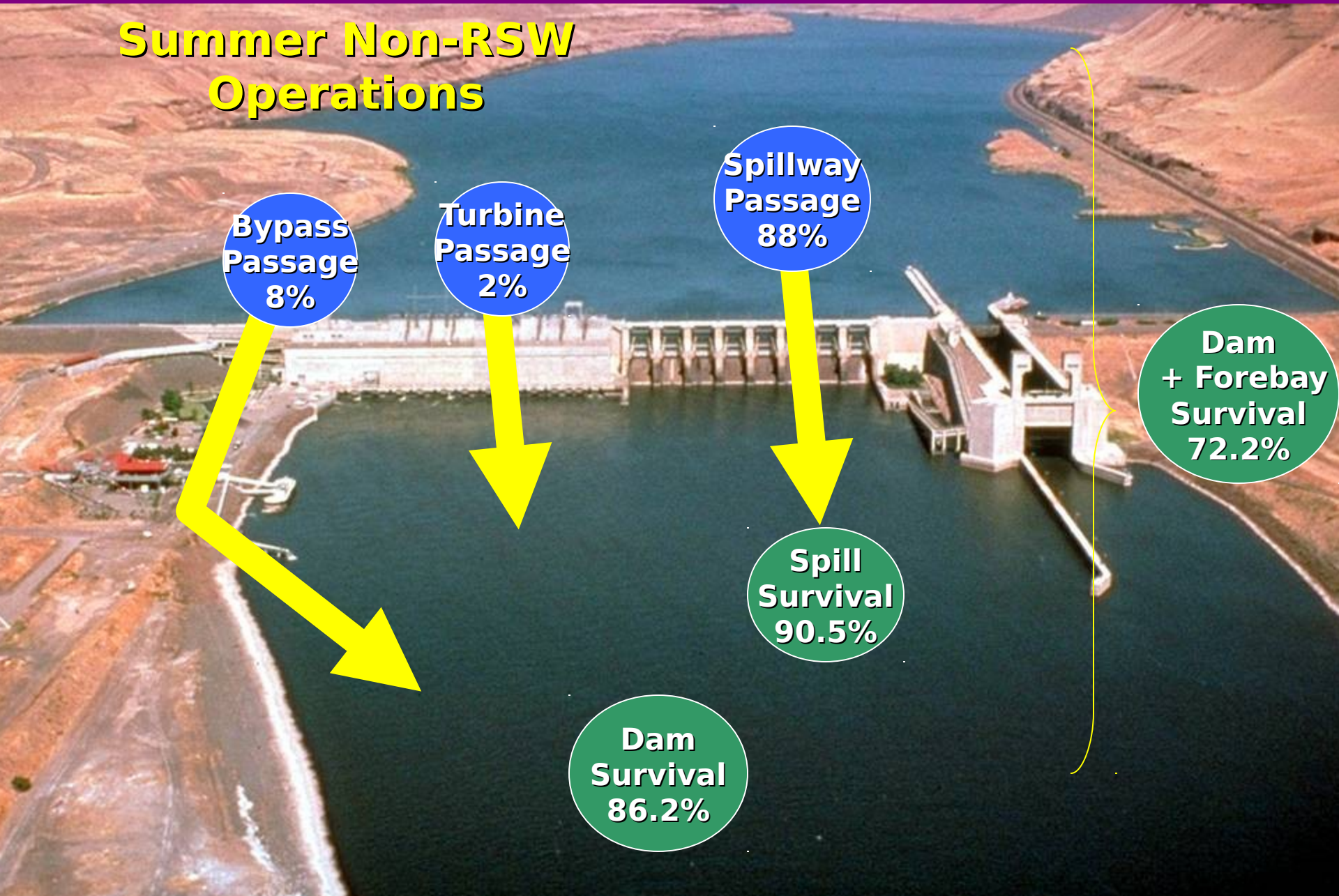
Little Goose Dam



Lower Monumental Background Information

- Study
  - Radio Telemetry and PIT – Paired Release
  - Approximately 2200 fish released
  - *July 6 – July 16
- Operations
  - Total Avg Q = 36kcfs
  - Spill Avg Q = 21kcfs (59%)

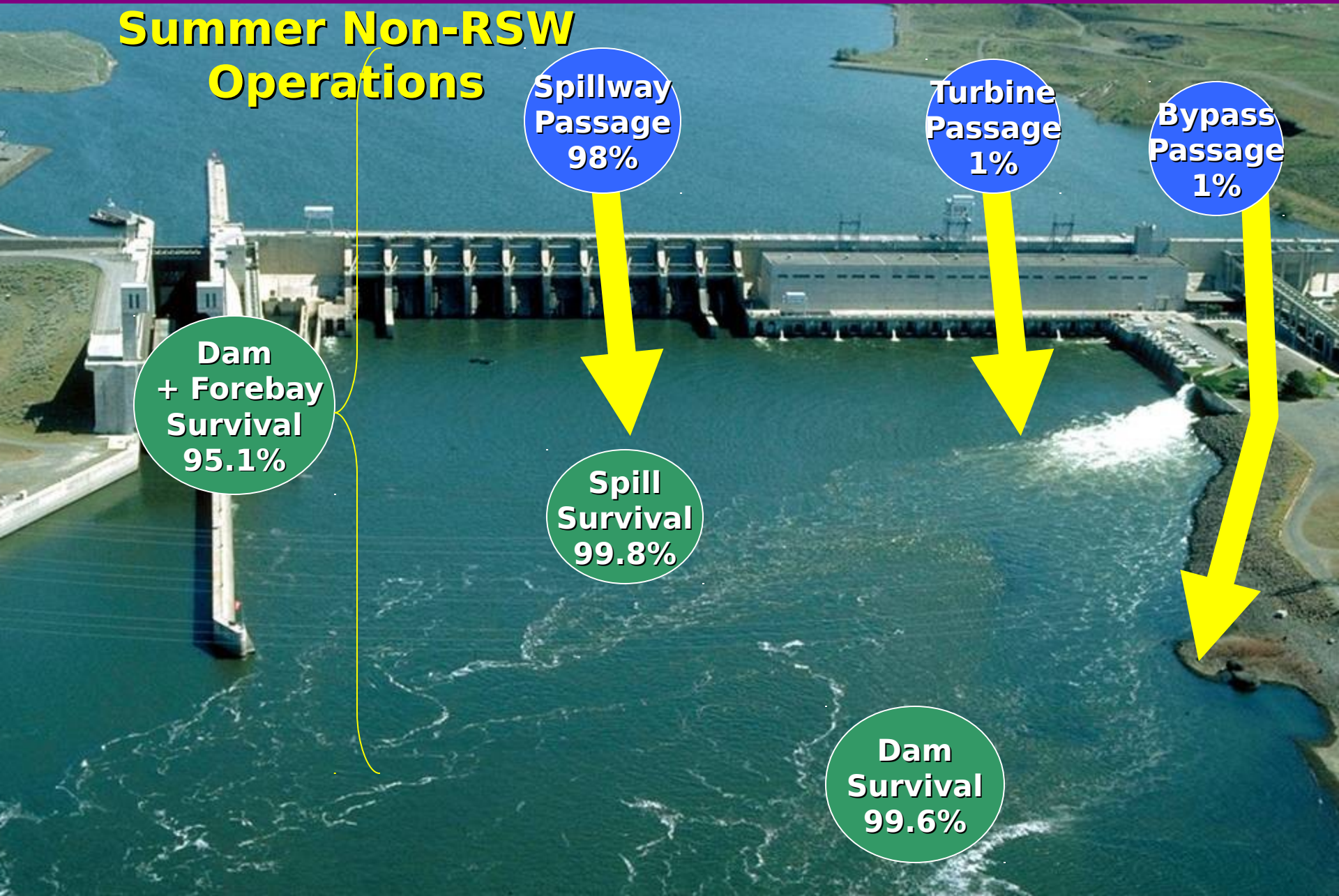
Lower Monumental Dam *



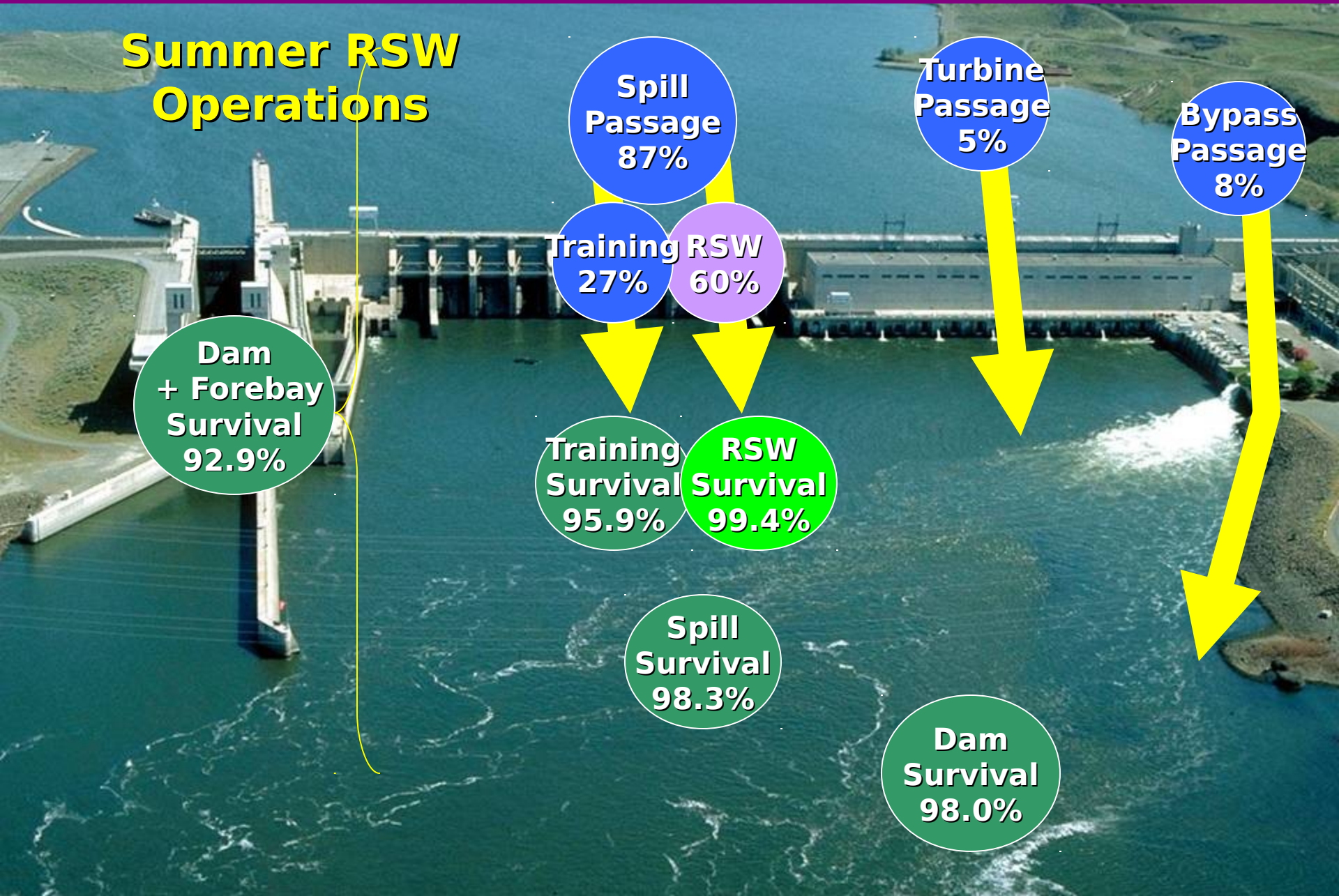
Ice Harbor Background Information

- Study
  - Radio Telemetry and PIT – Paired Release
  - Approximately 4200 fish released
  - June 10 – July 1
- Operations
  - RSW on Total Avg Q = 50kcfs
  - RSW on Spill Avg Q = 23kcfs (46%)
  - RSW off Total Avg Q = 49kcfs
  - RSW off Spill Avg Q = 41kcfs (84%)

Ice Harbor Dam



Ice Harbor Dam



McNary Background Information

- Study
  - Radio Telemetry - Paired Release
  - Approximately 2700 fish released
  - June 22 – July 31
- Operations
  - Total Avg Q = 171kcfs
  - Spill Avg Q = 104kcfs (60%)

McNary Dam

Summer RSW Operations
Spill Passage 64%
Spill Survival 102%
Turbine Passage 19%
Dam Survival 96.3%
Turbine Survival 86%
Bypass Survival 86%
Bypass Passage 17%

Key Overall Takeaways from R/T Studies

- The results suggest generally high subyearling survival through the projects

- Fish Passage Efficiency (FPE, the percent of fish passing via non-turbine routes) at all projects was relatively high ranging from 81 to 100%.

Key takeaways (cont.)

- Spill Effectiveness (percent of fish passing through the spillway divided by the percent of water passing through the spillway) was higher than we anticipated for Snake River Projects and was 2-3 times higher for RSW's than spillways.

- Dam passage with RSW had higher survival at LGR and Lower at Ice Harbor yet neither were likely statistically significant.

Passage Metrics

	RSW Operations		Non-RSW Operations	
	Passage %	CI	Passage %	CI
McNary				
Spill			63.8%	(61.0-66.6)
Turbine			18.8%	(16.3-21.3)
Bypass			17.4%	(15.5-19.5)
FGE			48.2%	(43.5-53.0)
FPE			81.2%	(78.7-83.7)
Spill Effect			1.06	
Ice Harbor				
Spill	87		98	
Turbine	5		1	
Bypass	8		1	
RSW	60		-	
FGE	61.5	(46.4-76.7)	62.5	(24-101.1)
FPE	95.2	(88.8-101.6)	99.6	(98.6-100.5)
RSW Effect.	3.4		-	
Spill Effect.	1.9		1.17	(1.12-1.23)
Lower Mon*				
Spill			88	
Turbine			2	
Bypass			8	
FGE			80	
FPE			96	
Spill Effect			1.49	

Passage Metrics

	RSW Operations		Non-RSW Operations	
	Passage %	CI	Passage %	CI
Little Goose				
Spill			84%	(2.4)
Turbine			2.7%	(1.0)
Bypass			13.3%	(2.2)
FGE			82.9%	(7.2)
FPE			97.3%	(1.0)
Spill Effect.			1.9	
Lower Granite				
Spill	18.5	(4.2)	93.9	(2.6)
Turbine	2.5	(1.6)	2	(1.6)
Bypass	11.2	(3.4)	4	(2.1)
RSW	67.7	(5.0)	-	-
FGE	81.6	(11.2)	66.7	(21)
FPE	97.5	(1.6)	98	1.6
RSW Effect.	3.96			
Spill Effect.			1.35	

Relative Survival Estimates

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
McNary	Dam			96.3	93.5-99.2
	Spillway			102	99.2-104.6
	Turbine			86.4	78.5-93.5
	bypass			86.5	80.5-92.0
Ice Harbor	Dam+Fore	92.9	90.0-95.9	95.1	92.4-97.8
	Dam	98	95.3-100.7	99.6	97.1-102.1
	Spillway	98.3	95.5-101.1	99.8	97.3-102.2
	RSW	99.4	96.3-102.4		
	Training	95.9	90.2-100.5		
	JBS	98.8	91.6-106.1		
Lower Mon	Dam+ Fore			72.2	66.8-78
	Dam			86.2	75.2-98.8
	Spillway			90.5	76-107.7
Little Goose	Spillway			92	4.6
	Dam			91.6	4.4
Lower Gran	Dam	93.9	10.6	89.5	9.9
	Spill			90.2	7.5
	RSW	94.5	5.5		